

CUSHMAN NO. 2 HYDROELECTRIC POWER PLANT
Spanning the North Fork Skokomish River
Hoodspout Vicinity
Mason County
Washington

HAER No. WA-192

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

National Park Service
U.S. Department of the Interior
Pacific West Region
909 First Avenue, Fifth Floor
Seattle, WA 98104

HISTORIC AMERICAN ENGINEERING RECORD
CUSHMAN NO. 2 HYDROELECTRIC POWER PLANT

HAER No. WA-192

Location: Spanning the North Fork Skokomish River, Mason County, Washington
USGS Quad – Hoodspout, Washington (Northern Section)
USGS Quad – Skokomish Valley, Washington (Southern Section)

UTM Coordinates:¹ Northern Section:
A. 484820E 5249260N; B. 484920E 5249300N;
C. 484910E 5249100N; D. 486960E 5246620N
Southern Section:
A. 486960E 5246640N; B. 487650E 5246300N;
C. 487610E 5246220N; D. 488060E 5246120N;
E. 488030E 5246000N

Legal Description:² T22N R4W, Sections 16, 21, 22, 26, 27

Construction Date: 1930

Engineer/Architect: Tacoma City Light
Powerhouse: J. E. Bonnel & Sons

Builder: Tacoma City Light
Powerhouse: J. E. Bonnel & Sons

Present Owner: City of Tacoma

Historic Use: Hydroelectric power production

Present Use: Hydroelectric power production

Significance: Cushman Hydroelectric Plant No. 2 is significant as an example of state-of-the-art high-head hydroelectric technology from the late 1920s and early 1930s. It is associated with Tacoma's burgeoning industrial and commercial growth, and with projected demands for electric power beyond the capacity of Cushman No. 1 Power Plant, built in 1926. Additionally, Cushman Plant No. 2 includes an architecturally significant powerhouse, designed on a monumental scale in the neoclassical style. In 1988, Cushman No. 1 and No. 2 Hydroelectric Power Plant Historic Districts were listed in the National Register of Historic Places.³

Report Prepared By: Mildred T. Andrews and Heather Lee Miller, Historians

¹ Lisa Soderberg , "Cushman No. 2 Hydroelectric Power Plant," National Register of Historic Places Registration Form, October 12, 1988, on file with the Washington Department of Archaeology and Historic Preservation, Olympia, Washington. Tacoma Power will further clarify boundary information as part of its Historic Properties Management Plan process.

² Ibid.

³ Ibid.

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Seattle, WA, 98101
and
John Stamets, Photographer
493 14th Avenue East
Seattle, WA 98112

Report Date: October 26, 2010

Project Information: On June 1, 2010, the National Park Service (NPS) issued instructions to the City of Tacoma (the City), regarding Historic American Engineering Record (HAER) documentation for the Cushman Dam No. 2 Hydroelectric Power Plant. The City of Tacoma, Department of Public Utilities, Light Division (dba Tacoma Power) has proposed construction of a new powerhouse with an integrated fish passage system at the dam's base. According to a Memorandum of Agreement (MOA) between the City and the Washington State Historic Preservation Officer (SHPO), the proposed project would have an adverse affect on the Cushman No. 2 Hydroelectric Power Plant Historic District. The Cushman No. 2 Hydroelectric Power Plant Historic District was listed, along with its older companion, Cushman No. 1 Hydroelectric Power Plant Historic District, in the National Register of Historic Places in 1988. Therefore, the City and SHPO agreed, in part, to mitigate proposed alterations through HAER documentation.

The Cushman No. 2 Power Plant is located in Mason County at the confluence of the North Fork of the Skokomish River at Hood Canal. The Skokomish River flows from the Olympic Mountain Range into the southern reach of Hood Canal, a narrow, 60-mile, hook-shaped, saltwater fjord that extends southward from north Puget Sound. The Area of Potential Effects (APE) for documentation includes the area affected by physical alterations to contributing resources in the Cushman Dam No. 2 Historic District, the viewshed for the proposed construction of the new powerhouse and integrated fish passage system, and areas of temporary or permanent construction outside the historic district which may affect archaeological resources. Contributing resources within the district are: the dam (and spillway), the headgate/intake structure, the water conveyance system (including the tunnel), the surge tank, the three penstocks, and the powerhouse.⁴ Also eligible for listing in the National Register is House No. 5, the only remaining operator's house dating to the historic district's period of significance. On SHPO's acceptance of the HAER report, the City may request the Federal Energy Regulatory Commission's (FERC) approval to amend the license, with authorization to construct the new powerhouse.

The requirement for HAER documentation is part of an ongoing process that began in 1974 when the Cushman Project's original license expired, and Tacoma Power applied to renew it, after which FERC issued annual licenses for the next twenty-four years. Various constituencies conducted numerous studies to respond to questions and provide requisite information. In 1994, the City, SHPO, FERC, NPS, Advisory Council on Historic Preservation (ACHP), Bureau of Indian Affairs (BIA), and Skokomish Indian Tribe signed a programmatic agreement with specific provisions for managing cultural resources at the Cushman Hydroelectric Project. In 1995, FERC issued a *Draft Environmental Impact Statement* for the Cushman Project and in 1996, it issued a related *Cultural Resource Management Plan* (CRMP), which includes proposed activities and mitigation strategies.

⁴ Lisa Soderberg, "Cushman No. 2 Hydroelectric Power Plant," National Register of Historic Places Registration Form, October 12, 1988, Section 7, page 2, on file with the Washington Department of Archaeology and Historic Preservation, Olympia, Washington.

FERC relicensed the Project in 1998, setting in motion a series of assessment, action, and appeals processes for a variety of regulatory issues. In 1999, Tacoma Power won a stay order during the appeals process that allowed it to continue operating the Cushman Project under existing conditions. During the same year, the Skokomish Indian Tribe filed a lawsuit (the *Treaty Damages* case) in Federal District Court in Tacoma against the U.S. government and the City of Tacoma, seeking damages of \$5.8 billion for the Cushman Project's impacts on the Skokomish People and their reservation lands.

In January 2009, after lengthy and complex mediation, the Skokomish Tribe, the City, and state and federal agencies negotiated agreements to continue operation of the Cushman plants, and to restore the Skokomish River to protect the area's natural resources. A key component of the agreement is the proposed new powerhouse and fish passage system, slated for construction at the base of the Cushman No. 2 dam. The proposed facility is intended to "dissipate the minimum flow releases on the aquatic habitat immediately downstream from the dam, provide attraction flow to a fish collection facility for fish passage, and recapture some of the generation lost by the release of minimum flows into the North Fork Skokomish River."⁵ As per SHPO's concerns regarding the project's adverse effects on the Cushman No. 2 Hydroelectric Power Plant Historic District, FERC has placed a hold on most of the license provisions for the Cushman Project, pending judicial review of the issues.

Tacoma Power hired Historical Research Associates to fulfill FERC's requirement of HAER documentation as a tool for mitigation. The researchers have had access to Tacoma Public Power's extensive archival collection, which includes original architectural and engineering drawings, daily log books, and historic photographic documentation. Formerly known as Tacoma Public Utilities (TPU), the department has managed the Cushman Project since the 1920s. In addition to the archives, project researchers have had access to long-term and retired managers of the Cushman Project.

PART I. HISTORICAL INFORMATION

First People

The Cushman Project is located in the ancient homeland of the Skokomish/Twana people. Twana is one of the Coastal Salish or Salishan languages spoken in western Washington and adjacent coastal areas. In the mid-1880s, at the time of initial European contact, Native people, speaking various Twana dialects, occupied the area defined by rivers and streams that flow into Hood Canal. Their winter villages were located near the mouths of rivers and streams and along the saltwater shores.⁶ The people travelled by canoe along the waterways, which served as a transportation system. They led a nomadic lifestyle for much of the year, using a considerable range of interior land. They hunted deer and elk, fished for salmon, gathered berries and roots, and preserved food for the winter months. In addition, they harvested shellfish and waterfowl. Salmon was their major source of food.⁷

During the winters, the Twana lived in villages, where they gathered in the longhouse and slept in smaller outbuildings. In the warmth of the longhouse, elders passed down ancient stories, often through traditional songs and dances. Younger generations learned about their history, which was intertwined with the spirit world, and about their traditions of living with the earth and with each other. Women taught

⁵ FERC, "Revised Memorandum of Agreement (MOA) for Cushman Hydroelectric Project Amendment of License for New Powerhouse," May 13, 2010.

⁶ Nile Thompson, "Skokomish," *Native America in the Twentieth Century: An Encyclopedia* (New York: Garland Publishing Co., 1996), 291, 600-601, 617.

⁷ Gary C. Wessen, "An Assessment of Archaeological Resource Potential in the Potlatch and Skokomish Indian Reservation Areas, Mason County, Washington," 2007.

girls to prepare food, make clothing from soft inner cedar bark and from animal skins, and weave intricate baskets with traditional designs. From the men, boys learned to carve cedar canoes and ceremonial masks, and to construct buildings for their villages and structures suitable for summer camps. In their largest longhouses, the Twana hosted potlatches for their neighbors and visitors to build friendships, arrange marriages, and validate personal powers and privileges. For centuries, regional Indians maintained their traditions, but the favorable circumstances would not last. In the mid-eighteenth century, the arrival of explorers, trappers and traders introduced unprecedented cultural impacts, along with unknown diseases that would wreak havoc on the indigenous people.

Contact Period

In 1792, Captain George Vancouver entered the Strait of Juan de Fuca to chart new territory in the name of the British Empire. He dispatched a ship, commanded by Lieutenant Peter Puget, to head south into the sound that would bear Puget's name. Vancouver led his expedition down the narrow channel that he named Hood Canal in honor of a colleague. In his journal, he noted "several runs of fresh water" and compared the "luxuriant appearance" of the landscape to English estate grounds. On May 12 at the mouth of the Skokomish River, Vancouver visited "new friends" who had approached his ship in canoes to barter small fish and clams in exchange for "beads, iron and copper." He wrote, "These good people conducted themselves in the most friendly manner."⁸

In 1833, the British Hudson's Bay Company established the region's first non-Native settlement at Fort Nisqually north of what later became Olympia. Native people from hundreds of miles around came to the fort to trade furs for iron pots, tools, and other goods that were new to them. Later in the 1830s, fur traders reportedly built a block house on a bluff near the mouth of the Skokomish River. In 1841, an American exploring expedition, commanded by Lieutenant Charles Wilkes, mapped southern Puget Sound and Hood Canal, naming many bays and inlets, including Anna's Bay at the mouth of the Skokomish River.⁹

In 1846, Great Britain relinquished its claim to the Puget Sound region and negotiated a treaty with the United States that established the current Canadian/American border. Oregon Territory extended down the Pacific Coast to California until 1853, when President Franklin Pierce signed the act that created Washington Territory north of the Columbia River. The next year, the territorial legislature established Mason County, where a few settlers had already staked their claims. In the Skokomish area there were Euro-American trappers and loggers, including Benjamin Franklin Shaw, who named Lake Cushman in honor of his companion, Orrington Cushman.¹⁰

By this time, the area's indigenous people had been ravaged by diseases that were new to them, including smallpox, tuberculosis, measles, syphilis, and alcoholism. But the most significant upheaval resulted from treaties with the U.S. government. Having promised land to homesteaders, the federal government initiated programs to obtain legal title from Indian peoples for their ancestral homelands and to establish

⁸ Bern Anderson, *Surveyor of the Sea: The Life and Voyages of Captain George Vancouver* (Seattle: Da Capo Paperbacks, 1960).

⁹ Harry W. Deegan, *History of Mason County, Washington* (1943; reprint, Shelton, WA: Self-published, 1960), 37.

¹⁰ Loretta Neumann, William Beckner, Janet Friedman, Steve DelSordo, and John J. Cullinane, "Cultural Resource Management Plan: Cushman Hydroelectric Project," draft (Tacoma, Washington: Tacoma Public Utilities, 1996), A3-7.

reservations where they would live. In Washington, the task was assigned to Isaac I. Stevens, who came west as the Territory's first governor and Superintendent of Indian Affairs.¹¹

Stevens scheduled treaty councils with tribal groups throughout the territory. In 1855, he met with chiefs, headmen, and other designated delegates from the Skokomish (which included all of the Twana-speaking communities), S'klallam, and Chemakum tribes to sign the Point No Point Treaty that established the Skokomish Indian Reservation, a six-section tract at the head of Hood Canal. The treaty required Skokomish/Twana people to move to the reservation, along with members of the S'klallam and Chemakum tribes, who in turn were required to abandon their ancestral homelands. On behalf of the U.S. government, Stevens agreed to pay the tribes \$60,000 for their lands, with the stipulation that the President of the United States had the authority to decide how the money was to be used. (Ultimately, the financial agreement was ignored.) Governor Stevens assured the tribes that they would retain access to areas where they had traditionally hunted, fished, and gathered food. The terms of the treaty were translated into Chinook Jargon (a jargon of some 350 Indian, French and English words that had long been used for trading) and then into Salish dialects. The treaty bears signatures of Stevens and several Euro-American witnesses, along with marks affixed by 56 Indian chiefs and delegates.¹² The Indians were never granted access to their hunting and fishing grounds as promised. Instead, settlers and logging companies claimed the land.¹³

Private land ownership and farming were cornerstones of efforts by the federal Bureau of Indian Affairs (BIA) to integrate Native people into Euro-American society. Acculturation efforts also included Christian missionary programs and education. Indian agents subdivided the Skokomish reservation into allotments and deeded a land parcel to each family as a means of creating settled farms and changing traditional cultural and economic patterns. The land titles were to be held in federal trust for 25 years before being transferred.¹⁴

Euro-American Settlement and Industrialization

The region's lush forests were a magnet for lumber barons from the tree-shorn Midwest and for Euro-American loggers. By the 1870s, some fifty logging camps operated in the south Hood Canal area.¹⁵ Steamers towed rafts of logs up Hood Canal to the giant Port Blakely Mill or to smaller local mills, such as John McCreavy's Puget Mill at Union City, located just east of the Skokomish Reservation. In 1900, Alfred Anderson and Sol Simpson founded the Phoenix Logging Company and the beachfront company town of Potlatch, adjacent to the Skokomish Reservation. The company's railroads zigzagged uphill toward Lake Cushman, through the timber tract owned by Ben Healy, a wealthy Midwesterner. Later, Simpson Logging Company, founded by Anderson and Sol Simpson, expanded its operations into the Skokomish area.¹⁶

As loggers cleared the land, homesteaders moved in to establish farms. By the late nineteenth century, there were three Euro-American communities along the ten-mile stretch of the Skokomish River, between

¹¹ Robert E. Ficken and Charles P. LeWarne, *Washington: A Centennial History* (Seattle: University of Washington Press, 1989), 26.

¹² Isaac I. Stevens, Undersigned Chiefs, Headmen, and Delegates of Skokomish, Chemakum, and S'klallam tribes, and Witnesses, *Treaty of Point No Point* (Point No Point, Washington, 1855), http://www.pnptc.org/treaty_of_point_no_point.html.

¹³ Ficken and LeWarne, *Washington*, 27.

¹⁴ Neumann et al., "Cultural Resource Management Plan: Cushman Hydroelectric Project," A3-7.

¹⁵ Michael Fredson, *Short History of Mason County* (Shelton, Washington: Mason County Historical Society, 1994).

¹⁶ Michael Fredson, *Images of America: Hood Canal* (Charleston, South Carolina: Arcadia Publishing, 2007), 45.

its mouth and the confluence of its north and south forks near Vance Creek. Fernwood was located near the mouth of the Skokomish River, on what is now the Nalley Farm. Mohrweis was located east of Vance Creek near the confluence of the north and south forks of the river. The third community, Middle Skokomish, was midway between the other two. Fernwood boasted a school district as early as 1894, while Mohrweis included a post office and school district by 1908. The Middle Skokomish school district was formed in 1904.¹⁷

A key factor in the area's development was transportation. Dreams of a railroad on the west side of Hood Canal spawned new communities and new ventures. In the late 1890s at Lake Cushman, William T. Putnam welcomed guests to Cushman House, while Russell Homan and Stanley Hopper opened the exclusive Antlers Hotel, which became a destination for elite New Yorkers. The next year, John McReavy, Vincent Finch, and others organized the Mason County Mining and Development Company and platted Hoodsport as a mining town. The company also owned manganese mines above Lake Cushman. By the early 1940s, more than 400 mining claims had been filed in the Skokomish watershed. Most of the prospectors were unsuccessful and mining did not become a major area industry.¹⁸

Early transportation by rough roads and pathways followed the rugged terrain from the Skokomish River delta, inland to Vance Creek, and then northward to Lake Cushman and the Olympic Mountains. Except for logging roads and railroad, most north-south travel was limited to canoe crossings on the lower portion of the Skokomish River until the 1920s. A well-known trail did cut across the Skokomish River near Mohrweis. Construction began on the north-south Olympic Highway 101 in 1917 and was completed in 1927. The east-west highway that extended from the south side of the Skokomish River, along Hood Canal, to the Navy Yard at Bremerton was completed in 1928. In addition to creating a land route between the Navy Yard and Camp Lewis, the highway opened up Hood Canal's south shore to recreational development.¹⁹

Cushman Hydroelectric Project

Tacoma was one of the first cities in the Pacific Northwest to own and operate a municipal electrical system. The utility was formed in the early 1890s to provide municipal lighting. The direct current system provided sufficient power for the first few years but, by the late 1890s, Tacoma had to purchase additional electricity from other private companies in the region. In 1909, City voters authorized construction of the first hydroelectric generating facility on the Nisqually River. Attempts to develop a power plant at Lake Cushman (Figure 1) began in 1912, when Seattle citizens approved a related bond issue. The City of Seattle issued condemnation notices to property owners, but abandoned the project in 1914.²⁰

By 1917, Tacoma was experiencing a population explosion and needed a new source of electric power to meet increasing demands of labor saving devices in the home and power-dependent industries. The City's Public Utilities Commissioner, Ira S. Davisson, and Tacoma City Light selected Lake Cushman and the Skokomish River as the site for a new hydroelectric complex. The City applied for a power franchise lease in 1919 and began condemnation proceedings the same year for the needed land. Acquisition of the property consumed two years of often acrimonious negotiations, including objections by Ed Sims, chairman of the Washington State fisheries board. In 1922, Davisson hired J. L. Stannard from San Francisco to serve as chief engineer. While some of the interviewees for the position wanted as much as

¹⁷ Neumann et al., "Cultural Resource Management Plan: Cushman Hydroelectric Project," A3-7.

¹⁸ Ruth Kirk and Carmela Alexander, *Exploring Washington's Past: A Road Guide to History* (Seattle: University of Washington Press, 1989), 505.

¹⁹ Fredson, *Images of America*, 76.

²⁰ Neumann et al., "Cultural Resource Management Plan: Cushman Hydroelectric Project," A3-9.

\$35,000 a year, Stannard offered his services at the bargain rate of \$7,500. He explained, "It's just what I wanted to do. I made a thorough investigation of the Cushman project in 1917 with the idea of doing it for Seattle and have always wanted to develop the project."²¹ In 1923, a temporary village rose at the site, with buildings that included warehouses, garages, machine shops, and residences for some 500 workers.²²

Construction of the first Cushman dam and power plant was a significant engineering feat because the structures were located in steep, inaccessible terrain that was prone to flooding. The dam rose to 275 feet in height and its crest extended 1,111 feet across the river valley. On October 20, 1925, the gates of the dam were closed, and Lake Cushman rose to fill a forested valley. One of the casualties was the Antlers Hotel. By May 1926, there was sufficient water in the reservoir to open the dam.²³ Two generators in the powerhouse began producing power that required two pairs of 315-foot steel towers, with cables that travelled more than a mile across the windy Tacoma Narrows Strait. On completion, the 44-mile transmission line was the longest in the world.²⁴

Since 1893, when the City of Tacoma bought Charles Wrights' Tacoma Light and Water Company, the City had been at the vanguard of the public ownership of utilities movement in the Northwest and in the nation.²⁵ From the start, Tacoma's public utility had sold power for commercial purposes in order to reduce the cost of residential power and light. The move to promote industrial expansion within the city directly influenced municipal power development. Following the opening of Cushman No. 1 in 1926, several large industrial enterprises located plants in Tacoma. A consequent population boom and the availability of inexpensive electricity encouraged consumers to purchase electric stoves, refrigerators, washing machines, and smaller appliances. By 1927, the City Light Department was promoting Cushman No. 2 with the dire prediction that without increased electrical output, Tacoma would face a power shortage within three years.²⁶

In 1929, the City began construction of a second dam on the Skokomish River, two miles downstream from Cushman No. 1 (Figure 1). The next year, a journalist reported, "Work on Cushman No. 2 project is being carried on seven days a week and 24 hours a day, as the power is urgently needed to supply the market at Tacoma."²⁷ Project engineers controlled the flow at Cushman No. 1 to avoid hazards of spring flooding. To divert the flow of the Skokomish River during construction, work crews built a 900-foot-long, 2,200 cfs capacity wooden flume that was mounted on high posts across the dam site. In addition, they constructed a 23-foot-high, rock-filled timber crib cofferdam that redirected the river 300 feet above the dam site. Using drilling equipment and hoists to remove large boulders and gravel, workers excavated the Cushman No. 2 dam foundation 75 feet below the river bed (Figure 2 and Figure 5). The new 240-foot, constant-radius, high-arch dam rose to create Lake Kokanee (Figure 22).²⁸

In the 1920s, the development of electric drill equipment made it economically feasible to build tunnels through solid rock. TPU had the capability to construct a 13,000-foot-long water conveyance system to divert water from Lake Kokanee to the powerhouse on the shore of Hood Canal. The tunnel's completion required designs of innovative equipment, including the Hackley pneumatic concrete gun, invented by

²¹ Dick Malloy and John S. Ott, *The Tacoma Public Utilities Story: The First 100 Years, 1893-1993* (Tacoma: Department of Public Utilities, 1993), 84.

²² Ibid.

²³ Ibid.

²⁴ Ibid. 81-88.

²⁵ Ibid. 15-17.

²⁶ Ibid. 87.

²⁷ "Cushman Power Plant No. 2 for Tacoma," *Western Construction News* (November 10, 1930), 538.

²⁸ Ibid., 539.

Roy C. Hackley, who was affiliated with the contractor, Youdall Construction Company of San Francisco. Hackley's invention enabled workers to shoot two cubic yards of concrete in a single operation, resulting in a perfect, circular form without voids.²⁹ The concrete mixing plant for the entire dam complex included two one-yard mixers located on the east bank of the stream (Figure 4). Utilizing chutes suspended from a 250-foot-tall Archer tubular tower, workers relied on gravity to place the concrete. When completed in 1930, the Cushman No. 2 headworks system represented state-of-the-art high-head technology of that period.³⁰ The 1988 National Register Nomination for Cushman No. 2 Hydroelectric Power Plant highlights the project's engineering feats, including the "enormous power tunnel driven through rock"³¹

Water spills from the dam into a 2.5-mile-long, concrete-lined tunnel to the powerhouse (Figure 25), which is located on the Skokomish Reservation and overlooks the Olympic Highway. Tacoma was one of two municipalities in Washington with the capability to develop remote hydroelectric facilities before 1930. The prominent and grand design of the powerhouse exudes the sense of pride and progress felt by the utility. The builders, J. E. Bonnel and Son of Tacoma, drew upon Neoclassical influences in civic architecture to express the importance of the facility to the functioning of the city (Figure 37). The interior workings of the powerhouse also reflect technological innovations of the time. During the transition from low-head systems, more typical in the East, and high-head systems, which were increasingly developed in the West, the relationship between the turbines and the generators became increasingly important. The two vertical turbines, that were installed during construction of the Cushman No. 2 power plant, represented a major improvement in power generating systems (Figure 47).

On August 22, 1939, John D. Ross, chief administrator of Bonneville Power (and former head of Seattle City Light), addressed Congress on the status of Bonneville Dam (1934) and the newly proposed Grand Coulee Dam for which he sought funding. He said, "The enterprises the Pacific Northwest needs most for industrial development are those requiring large quantities of cheap electrical energy of which the region will soon have abundance." In a feature article, the *Seattle Post-Intelligencer* listed thirteen key regional units that provided power and light. Among them was "Tacoma City Light (public monopoly—at present America's lowest power rates)."³² At the time, debates about issues of public or private power raged in many jurisdictions. Dubbed the "father of public power," Senator Homer T. Bone represented Washington State in the United States Congress (1932-1944). Bone was a pragmatic populist who championed public ownership of utilities, while condemning the utility trusts of big business. As a senator, he pushed the bills to construct the Bonneville and Grand Coulee dams.³³

Cushman No. 2's Impacts on Adjacent Areas

Construction of the Cushman No. 2 Powerhouse necessitated rerouting of Highway 101. TPU paid for the modification and built the highway's new concrete-arched bridge in front of the powerhouse (Figure 39). In addition, TPU constructed and landscaped the small beach-front park and public boat ramp across the highway.³⁴

²⁹ Ibid., 542-43

³⁰ Ibid.

³¹ Soderberg, "Cushman No. 2 Hydroelectric Power Plant," 8-2.

³² John D. Ross, "Plentiful Electricity Seen as Stimulant" (accompanied by quotes from the author's address to Congress and by a list of "key units and their present power and light services") *Seattle Post-Intelligencer*, August 22, 1939, Costello Scrapbooks, vol. 8, "Dams and Power," Seattle Public Library.

³³ Frank Chesley, "Bone, Homer Truett (1883-1970),"

http://www.washington.historylink.org/index.cfm?DisplayPage=output.cfm&file_id=5628, December 28, 2003.

³⁴ Steve Fischer, interview by Mildred Andrews, Cushman Power Plant, Hoodspout, Washington, June 23, 2010.

As TPU continued to operate the Cushman Hydroelectric Project, FERC encouraged the City to lease lands for residential and recreational development. By the late 1960s, residential areas were established between Lake Cushman and Lake Kokanee, and immediately south of Big Creek.³⁵ Water sports, fishing, and hiking continue to lure visitors to private lakeshore resorts. The area attracts tourists and hikers who drive from Hoodspport up the highway toward Lake Cushman and the Olympic National Forest. The Olympic National Forest was authorized by Congress in 1938.

In the 1930s, Marcus Nalley, patron of a food products empire, acquired property on the Skokomish River delta at Hood Canal, where he combined dairy farming with habitat for waterfowl. Nalley's passion was duck hunting, and to that end he created a wildlife preserve and artificial habitat that would provide a breeding and nesting ground for ducks and geese. He constructed dikes around the perimeter of the tidelands and reclaimed approximately 600 acres of land. This land supported his dairy herd, as well as the grain he fed to the waterfowl during the winter months. Nalley used his reserve for seasonal hunting. His habitat improvements remain visible in the existing landscape.³⁶

Protecting Fish

In February 1974, federal judge George Boldt issued a ruling that reaffirmed the rights of Washington's Indian tribes to fish in their "usual and accustomed grounds and places," as stipulated by federal treaties signed in 1854 and 1855. Indians, including the Skokomish, had been displaced by Euro-Americans and others, whose farming, logging, and dam building operations had polluted historic fishing grounds. The *Boldt Decision* allocated 50 percent of the annual catch to treaty tribes, who in turn advocated for improved protection of natural habitat. In 1994, treaty rights were extended to shellfish on tidelands.³⁷ In 1998, a federal license was issued to renovate invasive dams, with the provision that flows and passages for fish stocks be integrated into the project.

In 2008, the butterfly valve was removed from one of the two intake gates at the base of the dam and replaced with a jet flow gate valve. The alteration, designed to provide in-stream flows, was ordered by both the FERC and the Ninth Circuit Court of Appeals as part of the 1998 license for the Cushman Project.³⁸ On January 26, 2009, Tacoma proposed construction of a new powerhouse, with an integrated fish passage system, at the base of Cushman No. 2 dam. The intended outcome is to dissipate the minimum flow releases on aquatic habitat immediately downstream from the dam, provide attraction flow to a fish collection facility for fish passage, and recapture some of the generation lost by the release of minimum flows into the North Fork Skokomish River. The proposed project addresses FERC's license articles for Cushman's continued operation.

Landslide

In 1999, a landslide swept away the switchyard behind the powerhouse and filled the powerhouse with mud and debris. A new creek ran through the powerhouse, which was temporarily shut down. During

³⁵ Natalie K. Perrin and Heather Lee Miller, "Cushman No. 2 Hydroelectric Development Hoodspport, Mason County, Washington: North Fork Powerhouse and Fish Passage Section 106 Evaluation," May 2010, on file with Tacoma Public Utilities.

³⁶ Neumann et al., "Cultural Resource Management Plan: Cushman Hydroelectric Project," A3-12

³⁷ Ficken and LeWarne, *Washington*, 174-75.

³⁸ Perrin and Miller, "Cushman No. 2 Hydroelectric Development Hoodspport, Mason County, Washington: North Fork Powerhouse and Fish Passage Section 106 Evaluation."

cleanup operations, the creek was rerouted, so that it now flows into Hood Canal with the tailwater from the penstocks. The new switchyard was relocated to sit at the south side of the powerhouse.

Viewsheds and Access

The top 15 feet of Cushman No. 2 dam is visible from the Lake Kokanee shoreline and is accessible via Cushman Road, which intersects with U.S. Highway 101 at Hoodspport. Below the dam, there are virtually no overlooks of the river, which is difficult to approach physically. The powerhouse, penstocks, and surge tank are highly visible from U.S. Highway 101 and from Hood Canal Recreation Park (created by the Cushman Project and located across the highway from the powerhouse). Public access is prohibited to the switchyard and areas behind the powerhouse. The public is welcome to use the walkway on the powerhouse front that spans the tailrace, allowing views of both sides and the front of the landmark building. The complex can also be viewed from Hood Canal and from State Highway 106 across the canal.

TIMELINE FOR CUSHMAN PROJECT

1917	dam site on the North Fork of the Skokomish River, 44 miles northwest of Tacoma
1924	Federal Power Commission issues a 50-year license to the City of Tacoma for the Cushman Project; construction begins on Cushman No. 1 Dam
1925	dam's gates are closed and Lake Cushman begins to rise
1926	power plant and transmission line to Tacoma are completed; two generator units carry the City's entire 32,000-kilowatt energy load ³⁹
1927	Tacoma experiences population boom; city council approves construction of a second power plant at Cushman ⁴⁰
1929	construction begins on Cushman No. 2 Dam and Powerhouse
1930	in December, Cushman No. 2 begins generating power
1952-3	third turbine and penstock are constructed at Cushman No. 2
1974	Cushman Project's original license expires, and Tacoma Power applies for a new one; FERC does not have a process in place for issuing relicenses, and issues the first of many annual licenses ⁴¹
1998	on July 30, FERC issues a relicense; legal appeals are submitted to require incorporation of facilities to improve fish runs, historically vital to the Skokomish Tribe
1999	Tacoma Power receives a stay order that enables the Cushman Project to continue operation during the appeal process
1999	a landslide inundates the power house and destroys the switchyard behind it; a new switchyard is constructed at the south side of the powerhouse
2008	crane pads are constructed on the parapet of the dam; one of the outlet valves at the base of the dam is removed and replaced with jet flow valve; abutment repair on upstream cleft of the dam is completed (see below).

³⁹ Neumann et al., "Cultural Resource Management Plan: Cushman Hydroelectric Project," A1-A23.

⁴⁰ Soderberg, "Cushman No. 2 Hydroelectric Power Plant," 8-1.

⁴¹ Tacoma Power, "Cushman Hydroelectric Project Timeline," 2009.

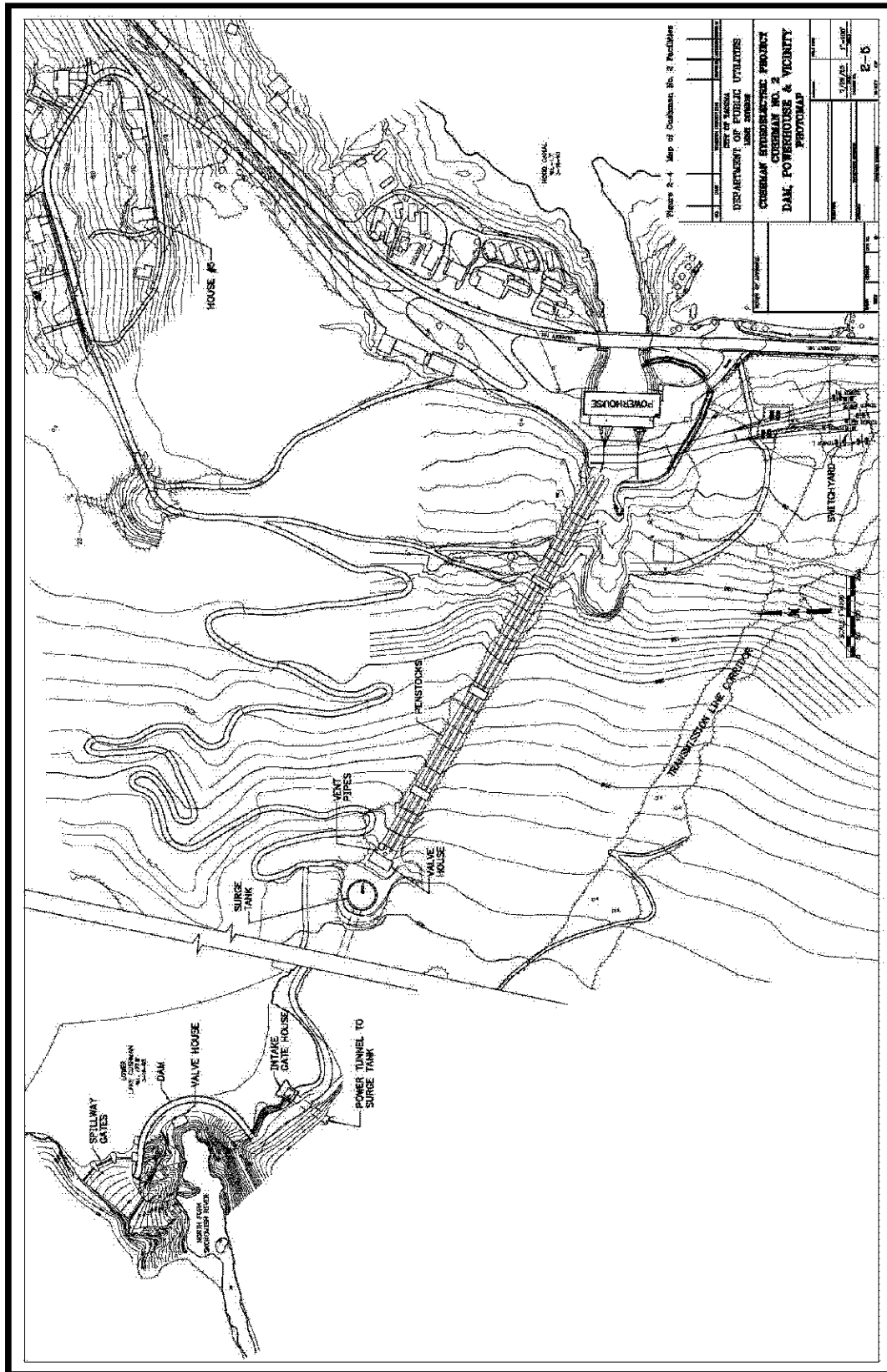


Figure 1. Cushman Hydroelectric Project, Cushman No. 2. General location map, 2010. Source: City of Tacoma, Department of Public Utilities, Light Division, #CUS2-2-5.pdf.

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